

PB99-118366



Advanced Public Transportation Systems Deployment in the United States

Update, January 1999

Prepared for:

**Office of Mobility Innovation
Federal Transit Administration
U. S. Department of Transportation**

Prepared by:

**Office of System and Economic Assessment
John A. Volpe National Transportation Systems Center
Research and Special Programs Administration
U. S. Department of Transportation**

PROTECTED UNDER INTERNATIONAL COPYRIGHT
ALL RIGHTS RESERVED.
NATIONAL TECHNICAL INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE

Reproduced from
best available copy.



REPORT DOCUMENTATION PAGE

*Form Approved
OMB No. 0704-0188*

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

 (Blank) PB99-118366	2. REPORT DATE January 1999	3. REPORT TYPE AND DATES COVERED Final Report July 1998 - December 1998	
4. TITLE AND SUBTITLE Advanced Public Transportation Systems Deployment in the United States		5. FUNDING NUMBERS TT950/U9181	
6. AUTHOR(S) Robert F. Casey			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Department of Transportation Research and Special Programs Administration John A. Volpe National Transportation Systems Center Cambridge, MA 02142-1093		8. PERFORMING ORGANIZATION REPORT NUMBER DOT-VNTSC-FTA-99-1	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Department of Transportation Federal Transit Administration, TRI-10 Office of Mobility Innovation 400 Seventh Street, SW Washington, DC 20590		10. SPONSORING/MONITORING AGENCY REPORT NUMBER FTA-MA-26-7007-99-1	
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION/AVAILABILITY STATEMENT This document is available to the public through the National Technical Information Service, Springfield, VA 22161		12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) <p>This report documents work performed under FTA's Advanced Public Transportation Systems (APTS) Program, a program structured to undertake research and development of innovative applications of advanced navigation, information, and communication technologies that most benefit public transportation.</p> <p>This report is a compilation of existing and planned deployments of APTS technologies and services. The information was collected during the Fall of 1998 and was obtained through contacts with one or more persons at each agency. The objective was to include information from all agencies who submitted information for the 1996 National Transit Database (NTD) Report Year, the last year for which NTD data was available at the time. A total of 551 agencies provided information for this study. Only those agencies with existing or planned APTS systems are included in this report.</p>			
14. SUBJECT TERMS Intelligent Transportation Systems (ITS), Advanced Public Transportation Systems (APTS), Advanced Technology Transit Applications, Transit Navigation Systems, Transit Information Systems, Transit Communication Systems, Transit Control Systems, Automated Vehicle Location, Automated Passenger Counters, Automated Fare Payment		15. NUMBER OF PAGES 46	
		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT

PREFACE

This research was conducted by the Office of System and Economic Assessment at the Volpe National Transportation Systems Center, U.S. Department of Transportation, Research and Special Programs Administration and was sponsored by the Office of Mobility Innovation, U.S. Department of Transportation, Federal Transit Administration. This report is the second in what will be a series of biennial reports tracking the existing and planned deployments of Advanced Public Transportation Systems (APTS) technologies and services in the United States.

The information contained in this report was collected by personnel at the Volpe National Transportation Systems Center (Volpe Center) during the Fall of 1998. The data were obtained through contacts with one or more persons at each agency. The data contained in tables are only as accurate as the information provided, primarily verbally, by the agency contacts and have not been verified by the Volpe Center.

The objective was to reach all agencies who submitted information for the 1996 National Transit Database (NTD) Report Year, the latest year for which NTD data were available at the time. Some reporting agencies were not appropriate for inclusion in this compilation, and some could not be contacted. Nevertheless, a total of 551 agencies provided information for this study. Responding agencies with no existing or planned APTS systems are not included in this report.

Appreciation goes to Melissa Laube and Lawrence Labell of the Volpe Center, to Howard Eichenbaum, Edward Newhall, and Margaret Stevens of EG&G who collected the information contained in this report, and to Walter Zak of EG&G who assisted in the collection of data and also designed a program to sort, summarize, and present the data. Appreciation also goes to Darryl Gruen of EG&G who compiled the data. Finally, appreciation goes to all the agencies who supplied information for this report.

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1. SUMMARY OF APTS DEPLOYMENTS	1-1
2. APTS DEPLOYMENT IN THE U.S. BY TRANSIT AGENCY.....	2-1

LIST OF TABLES

<u>Table</u>	<u>Page</u>
TABLE 1. APTS DEPLOYMENT SUMMARY	1-2
TABLE 2. APTS DEPLOYMENT IN THE U.S. BY TRANSIT AGENCY.....	2-2

LEGEND

Service Type	
FR	Fixed Route
DR	Demand Response
LR	Light Rail
HR	Heavy Rail
CR	Commuter Rail
FB	Ferry Boat
AG	Automated Guideway
MR	Mono Rail

Advanced Communications	
DIG	Digital Radio
TR	Trunked Radio

Automated Vehicle Location	
DGPS	Differential Global Positioning System
GPS	Global Positioning System
DK	Dead Reckoning
LC	Loran C
SO	Signpost/Odometer
OTR	Other

Automated Passenger Counters	
IB	Infrared Beam
TM	Treadle Mat

Automated Transit Information	
I	In Vehicle
P	Pre-Trip
T	In-Terminal
W	Wayside

Automated Fare Payment	
CC	Credit Card
DC	Debit Card
MS	Magnetic Stripe
SC	Smart Card

General	
U	Unspecified Technology

Status	
Any Letter(s)	Operational Phase
(Any Letter(s))	Implementation Phase
[Any Letter(s)]	Planning Phase

SECTION 1. SUMMARY OF APTS DEPLOYMENTS

A summary of APTS deployments is shown in Table 1. Table 1 is divided into 13 sections corresponding to the 13 Advanced Public Transportation System (APTS) elements covered in this report. The summary table sections show the number of responding transit agencies with present and future deployments of APTS elements and the number of service types these agencies operate using APTS technologies. Table 1-1, for example, reveals that 212 transit agencies operate 361 service types employing some form of advanced communications. The table sections also summarize the deployments by the technologies utilized (where applicable), and whether the element is operational, in the implementation phase, or actively being planned.

The breakdown by service type will sum to the service type total. However, the breakdowns by technology and status frequently will not sum to the transit agency and service type totals because of the number of agencies which utilize multiple technologies (e.g., trunked *and* digital communications, magnetic stripe *and* smart card fare payment, etc.) or operate one type of technology but are implementing or planning an upgrade to another (e.g., from signpost to global positioning system automatic vehicle location, adding pre-trip or wayside information to automated telephone information, etc.).

By a considerable margin, the APTS element with the most extensive operational deployment is advanced communications with 233 service types operated by 140 agencies. Next are automated transit information with 102 service types operated by 89 agencies, paratransit computer assisted dispatching with 101 operational systems, and automatic vehicle location with 79 service types operated by 61 agencies. These are followed by automated fare payment (49 service types, 42 agencies), automated operations software (43 service types, 40 agencies), mobility manager (42 service types, 42 agencies), multi-carrier fare integration (32 service types, 27 agencies), multimodal traveler information (25 service types, 21 agencies), automated passenger counters (24 service types, 24 agencies), traffic signal priority (16 service types, 16 agencies), vehicle component monitoring (14 service types, 13 agencies), and transportation management centers (11 service types in 9 areas).

The number of operational APTS systems found during this study is considerably larger than the number found in the 1995 study. Comparison of the data from the two studies reveals the following increases: advanced communications (202%), automated transit information (108%), paratransit computer assisted dispatching (40%), automatic vehicle location (259%), automated fare payment (96%), automated operations software (72%), mobility manager (600%), multi-carrier fare integration (146%), multimodal traveler information (400%), automated passenger counters (118%), traffic signal priority (77%), vehicle component monitoring (180%), and transportation management centers (10%).

There were 90 more agencies contacted in this study than in the prior study. However, most of these additional agencies are small and not likely to have APTS systems.

TABLE 1. APTS DEPLOYMENT SUMMARY

Table 1-1. Advanced Communications		
	By Transit Agency	By Service Type
Totals	212	361
Service Type		
FR		185
DR		149
LR		13
HR		4
CR		5
FB		5
Technology		
Trunked	120	209
Digital	94	154
Other/Unknown	42	73
Status		
Operational	140	233
Implementation	19	28
Planning	61	106

Note: Breakdowns by technology, status, and location may not sum to transit agency and service type totals.

TABLE 1. APTS DEPLOYMENT SUMMARY

Table 1-2. Automated Vehicle Location		
	By Transit Agency	By Service Type
Totals	154	224
Service Type		
FR		127
DR		75
LR		7
HR		3
CR		5
FB		6
AG		1
Technology (Primary)		
GPS/DGPS	107	157
SignPost/Odometer	14	18
Loran-C	1	1
Dead Reckoning	2	2
Other	4	4
Unknown	32	46
Status		
Operational	61	79
Implementation	25	33
Planning	75	116

Table 1-3. Automated Passenger Counters		
	By Transit Agency	By Service Type
Totals	64	64
Service Type		
FR		64
Technology		
Treadle Mats	4	4
Infrared Beams	43	43
Other/Unknown	20	20
Status		
Operational	24	24
Implementation	6	6
Planning	34	34

Note: Breakdowns by technology, status, and location may not sum to transit agency and service type totals.

TABLE 1. APTS DEPLOYMENT SUMMARY

Table 1-4. Vehicle Component Monitoring		
	By Transit Agency	By Service Type
Totals	44	48
Service Type		
FR		44
LR		2
HR		2
Status		
Operational	13	14
Implementation	7	7
Planning	24	27

Table 1-5. Automated Operations Software		
	By Transit Agency	By Service Type
Totals	94	102
Service Type		
FR		83
LR		7
HR		5
CR		6
AG		1
Status		
Operational	40	43
Implementation	13	16
Planning	42	43

Note: Breakdowns by technology, status, and location may not sum to transit agency and service type totals.

TABLE 1. APTS DEPLOYMENT SUMMARY

Table 1-6. Automated Transit Information		
	By Transit Agency	By Service Type
Totals	163	179
Service Type		
FR		142
DR		3
LR		9
HR		6
CR		9
FB		10
Location		
In Vehicle	26	32
Pre-Trip	74	86
In Terminal	41	46
Wayside	17	20
Other/Unknown	57	60
Status		
Operational	89	102
Implementation	25	26
Planning	50	52

Table 1-7. Multimodal Traveler Information		
	By Transit Agency	By Service Type
Totals	43	51
Service Type		
FR		37
DR		2
LR		3
HR		3
CR		3
FB		3
Status		
Operational	21	25
Implementation	7	7
Planning	15	19

Note: Breakdowns by technology, status, and location may not sum to transit agency and service type totals.

TABLE 1. APTS DEPLOYMENT SUMMARY

Table 1-8 Automated Fare Payment		
	By Transit Agency	By Service Type
Totals	108	140
Service Type		
FR		87
DR		26
LR		5
HR		8
CR		7
FB		7
Technology		
Magnetic Stripe	44	56
Smart Card	46	65
Credit Card	10	12
Debit Card	6	6
Other/Unknown	16	20
Status		
Operational	42	49
Implementation	8	9
Planning	60	84

Table 1-9 Multi-Carrier Fare Integration		
	By Transit Agency	By Service Type
Totals	58	77
Service Type		
FR		50
DR		14
LR		3
HR		5
CR		3
FB		2
Status		
Operational	27	32
Planning	31	45

Note: Breakdowns by technology, status, and location may not sum to transit agency and service type totals.

TABLE 1. APTS DEPLOYMENT SUMMARY

Table 1-10. Paratransit CAD		
	By Transit Agency	By Service Type
Totals	151	151
Service Type		
DR		151
Status		
Operational	101	101
Implementation	12	12
Planning	38	38

Table 1-11. Mobility Manager		
	By Transit Agency	By Service Type
Totals	58	58
Service Type		
DR		58
Status		
Operational	42	42
Implementation	3	3
Planning	13	13

Table 1-12. Transportation Management Centers		
	By Transit Agency	By Service Type
Totals	28	33
Service Type		
FR		27
DR		1
LR		2
HR		2
CR		1
Status		
Operational	9	11
Planning	19	22

Note: Breakdowns by technology, status, and location may not sum to transit agency and service type totals.

TABLE 1. APTS DEPLOYMENT SUMMARY

Table 1-13 Traffic Signal Priority		
	By Transit Agency	By Service Type
Totals	55	56
Service Type		
FR		53
LR		2
CR		1
Status		
Operational	16	16
Implementation	7	7
Planning	33	33

Note: Breakdowns by technology, status, and location may not sum to transit agency and service type totals.

SECTION 2. APTS DEPLOYMENT IN THE U.S. BY TRANSIT AGENCY

Table 2 lists present and future deployments of APTS elements by transit agency and service type, as well as the number of vehicles operated (by the agency or under contract) in each service type. In some instances, not all vehicles in each service type are, or would be, equipped with APTS elements. These agencies are arranged alphabetically, first by state and then by agency name.

As indicated in the table legend, items enclosed by parentheses and brackets are in the implementation and planning phases, respectively. All others are operational elements. Where multiple entries exist in any table cell, two or more technologies are utilized, sometimes in different phases of deployment. With one possible exception, the transit elements contained in the column headings are those that involve some form of automation or electronics, and are therefore considered Advanced Public Transportation Systems. The possible exception is the mobility manager, which may or may not incorporate automation.

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Vehicles		Advanced Communications		Automated Passenger Counters		Vehicle Component Monitoring		Automated Operations Software		Automated Transit Information		Multi-modal Traveler Information		Automated Fare Payment		Multi-Carrier Fare Integration		Paratransit CAD		Mobility Manager		Transportation Management Centres		Traffic Signal Priority			
		FR	DR	FR	DR	[GPS]	[GPS]	[X]	[X]	[MS], [SC]	[SC]	[X]	[X]	P	[X]	X	X	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	
Anchorage Public Transportation, Anchorage, AK	FR	50	TR																										
Birmingham-Jefferson County Transit Authority, Birmingham, AL	FR	31	TR																										
City of Gadsden, Gadsden, AL	DR	76																											
City of Huntsville Department of Transportation, Huntsville, AL	DR	14																											
Demand and Response Transit (DART), Montgomery, AL	DR	11	TR, DIG																										
East Alabama Regional Planning and Development Commission, Anniston, AL	FR	15	TR																										
Lee-Russell Council of Governments, Opelika, AL	FR	43	DIG																										
Mobile Transit Authority, Mobile, AL	DR	11	(DIG)																										
Northwest Alabama Council of Governments, Muscle Shoals, AL	DR	6	TR																										
Central Arkansas Transit Authority, North Little Rock, AR	FR	12	TR																										
Intra City Transit, Hot Springs, AR	DR	42	TR																										
Pine Bluff Transit, Pine Bluff, AR	DR	8	TR																										
City of Mesa, Mesa, AZ	FR	53	DIG																										
	DR	17	DIG																										
	FR	60																											
	DR	12																											
	FR	11																											
	DR	5																											
	FR	6	TR																										
	DR	2	TR																										
	FR	25	(U)																										
	DR	30	(I)																										
	FR	MS, CC	X																										
	DR	30	X																										

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Vehicles									
		Advanced Communications	Automated Passenger Counters	Vehicle Component Monitoring	Automated Operations Software	Multimodal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Paratransit CAD	Mobility Manager	Transportation Management Centres
Glendale Dial-A-Ride, Glendale, AZ	DR	15									
Maricopa County Transportation Services, Phoenix, AZ	DR	70	TR, DIG								
Peoria Transit, Peoria, AZ	DR	8									
Regional Public Transportation Authority (Valley Metro), Phoenix, AZ	FR	75		GPS			X		CC	X	
Scottsdale Connection, Scottsdale, AZ	FR	12							CC, DC	X	
Sun Tran, Tucson, AZ	FR	203	TR, DIG	GPS	IB	(X)	(I), (T)				
Access Service Incorporated (ASI), Los Angeles, CA	DR	750	TR, DIG	GPS, [U]			(P)	(X)			X
Alameda Contra Costa Transit District, Oakland, CA	FR	705	[U]	[GPS]	IB	[X]	[U], [T]		[MS]	[X]	
Antelope Valley Transit Authority, Lancaster, CA	FR	42	[U]	[GPS]		[X]					[X]
Arcadia Transit, Arcadia, CA	DR	18		GPS					X	X	
Benicia Transit, Martinez, CA	FR	8	DIG								
Camarillo Area Transit, Camarillo, CA	FR	1	DIG		GPS	IB			SC	X	
Central Contra Costa Transit Authority, Concord, CA	FR	3			GPS				SC	X	
Chico Area Transit System, Chico, CA	DR	8	[U]	GPS				P	X		
City of Alameda Ferry Services, Alameda, CA	FB	4		DGPS				[SC]	[X]		
City of Commerce Municipal Bus Lines, Commerce, CA	FR	12	[U]				(U)				
	DR	3								X	

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Advanced Communications			Automated Passenger Counters			Vehicle Component Monitoring			Automated Operations Software			Multimodal Traveler Information			Automated Transit Information			Multi-Carrier Fare Integration			Paratransit CAD			Mobility Manager			Transportation Management Centres			Traffic Signal Priority		
		FR	DR	[U]	[GPS]	[P]	[X]	[X]	[X]	[X]	[SC]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]			
City of Glendale, Glendale, CA	FR	25			[GPS]		[X]																											
City of La Mirada, La Mirada, CA	DR	4																																
City of Riverside Special Transportation, Riverside, CA	DR	13																																
City of Roseville Transit, Roseville, CA	DR	21			GPS																													
City of Torrance Transit System, Torrance, CA	FR	12	TR																															
Culver City Municipal Bus Lines, Culver City, CA	FR	11	TR																															
Davis Community Transit, Davis, CA	DR	2																																
Eastern Contra Costa Transit Authority (Tri-Delta Transit), Antioch, CA	FR	33			[GPS]																													
Emery Go-Round, Oakland, CA	DR	16			[GPS]																													
Fairfield-Suisun Transit, Fairfield, CA	FR	5			(GPS)																													
Foothill Transit, West Covina, CA	FR	26			[GPS]																													
Fresno Area Express, Fresno, CA	DR	11	DIG		[GPS]																													
Gardena Municipal Bus Line, Gardena, CA	FR	259	DIG		[DIG]																													
Golden Empire Transit District, Bakersfield, CA	FR	100	DIG		GPS																													
Golden Gate Bridge, Highway and Transportation District, San Francisco, CA	DR	25	DIG		[GPS]																													
Gardena, CA	FR	45			GPS																													
Golden Empire Transit District, Bakersfield, CA	DR	9																																
Golden Gate Bridge, Highway and Transportation District, San Francisco, CA	FR	72	TR		[U]																													
Gardenia, CA	DR	9	TR		[U]																													
Golden Gate Bridge, Highway and Transportation District, San Francisco, CA	FB	280	DIG		[U]																													
Gardenia, CA	FB	5	DIG		[U]																													

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Vehicles	Advanced Communications	Automated Passenger Counters	Vehicle Component Monitoring	Automated Operations Software	Multimodal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Paratransit CAD	Mobility Manager	Transportation Management Centres	Traffic Signal Priority
Laguna Beach Municipal Transit Lines, Laguna Beach, CA	FR	10 [DIGI]						[U]	[X]	[SC]	[X]		
Livermore/Amador Valley Transit Authority, Livermore, CA	FR	60 [GPS]	TR [GPS]	[X]						[SC]	[X]		
Long Beach Public Transportation Co., Long Beach, CA	DR	9 [GPS]	TR [GPS]							[SC]	[X]		
Los Angeles County Metropolitan Transportation Authority, Los Angeles, CA	FR	216 [DIGI]			(X)								
Los Angeles Department of Transportation, Los Angeles, CA	DR	20 [DIGI]											
Mendocino Transit Authority, Ukiah, CA	FR	2278 [DIGI]	SO, [DGPS]	[IB]	[X]	I, T, P	[X]			[MS], [SC]	[X]		
Modesto Area Express, Modesto, CA	DR	54 [DIGI]	TR [SO]		[X]	I, T, P	[X]			[MS], [SC]	[X]		
Montebello Bus Lines, Montebello, CA	DR	19 [DIGI]	TR [SO]		X	I, T, P	[X]			[MS], [SC]	[X]		
Monterey-Salinas Transit, Monterey, CA	DR	27 [DIGI]				P							
North San Diego County Transit District, Oceanside, CA	FR	10 [GPS]											
Norwalk Transit System, Norwalk, CA	DR	54 [GPS]			X								
Omnitrans, San Bernardino, CA	DR	31 [DIGI]				U	X						
Orange County Transportation Authority, Orange, CA	CR	21 [DIGI]											
	FR	4 [GPS]											
	FR	25 [GPS]											
	FR	154 [GPS]											
	DR	4 [GPS]											
	FR	153 [DIGI]	[DGPS]	[IB]	[X]	X	P	X		[MS]	[X]		
	DR	88 [DGPS]											
	FR	460 [GPS]											
	DR	230 [GPS]											
	CR	30 [TR]											

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status				Traffic Signal Priority
		DR	DIG	DGPS	[SC]	
Outreach and Escort Inc., San Jose, CA	Service Vehicles	DR	150	DIG	X	
Peninsula Corridor Joint Powers Board (Caltrain), San Carlos, CA	Service Vehicles	CR	73	TR	X	
Petaluma Transit, Petaluma, CA	Advanced Communications	FR	8			
Redding Area Bus Authority, Redding, CA	Automated Vehicle Location	DR	3			
Riverside Transit Agency, Riverside, CA	Automated Vehicle Location	FR	97	[U]	DK	X
Sacramento Regional Transit District, Sacramento, CA	Vehicle Component Monitoring	DR	66	[U]		
Sacramento Regional Transit District, Sacramento, CA	Automated Operations Software	FR	211	TR		
Sacramento Regional Transit District, Sacramento, CA	Automated Passenger Counters	DR	84	TR		
San Benito County Transit, Hollister, CA	Automated Passenger Counters	LR	36	TR		
San Diego Transit Corporation, San Diego, CA	Automated Passenger Counters	FR	4	[DIG]		
San Diego Trolley, San Diego, CA	Automated Passenger Counters	DR	12	[DIG]		
San Francisco Bay Area Rapid Transit District (BART), Oakland, CA	Automated Passenger Counters	FR	307	TR, DIG	[GPS]	[X]
San Francisco Municipal Railway, San Francisco, CA	Automated Passenger Counters	DR	14			
San Joaquin Regional Transit District, Stockton, CA	Automated Passenger Counters	LR	123	[GPS]		
San Luis Obispo Regional Transit Authority, San Luis Obispo, CA	Automated Passenger Counters	HR	669	(TR)	X	
San Mateo County District (Samtrans), San Carlos, CA	Automated Passenger Counters	FR	945	SO		
San Francisco, CA	Automated Passenger Counters	LR	157	SO		X
San Joaquin Regional Transit District, Stockton, CA	Automated Passenger Counters	FR	98	DIG	DGPS	(P)
San Luis Obispo Regional Transit Authority, San Luis Obispo, CA	Automated Passenger Counters	DR	41	DIG	DGPS	MS
San Mateo County District (Samtrans), San Carlos, CA	Automated Passenger Counters	FR	9	14		X
San Mateo County District (Samtrans), San Carlos, CA	Automated Passenger Counters	FR	314	(TR)	[GPS]	[IB]
San Mateo County District (Samtrans), San Carlos, CA	Automated Passenger Counters	DR	58	(TR)	[GPS]	[IB]
Transportation Management Centres	Mobility Manager					
Multimodal Traveler Information	Paratransit CAD					
Multi-Carrier Fare Integration	Multi-Carrier Fare Integration					
Automated Fare Payment	Automated Fare Payment					
Automated Transit Information	Automated Transit Information					
Vehicle Component Monitoring	Vehicle Component Monitoring					
Automated Operations Software	Automated Operations Software					
Automated Passenger Counters	Automated Passenger Counters					
Advanced Communications	Advanced Communications					
Service Vehicles	Service Vehicles					

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	SERVICE VEHICLES	ADVANCED COMMUNICATIONS	AUTOMATED PASSENGER COUNTERS	VEHICLE COMPONENT MONITORING	AUTOMATED OPERATIONS SOFTWARE	MULTIMODAL TRAVELER INFORMATION	AUTOMATED FARE PAYMENT	MULTI-CARRIER FARE INTEGRATION	PARTTRANSIT CAD	MOBILITY MANAGER	TRANSPORTATION MANAGEMENT CENTERS	TRAFFIC SIGNAL PRIORITY	
Santa Barbara Metropolitan Transit District, Santa Barbara, CA	FR	90					U							
Santa Clara Valley Transit Authority, San Jose, CA	FR	471	[U]	[DGPS]	[B]	(X)	T,W,P	X	[SC],[CC]					X
Santa Cruz Metropolitan Transit District, Santa Cruz, CA	LR	56	[U]	[DGPS]		(X)	T,W,P	X	[SC],[CC]					
Santa Monica Municipal Bus Lines, Santa Monica, CA	FR	93							[MS]					
Santa Rosa City Bus, Santa Rosa, CA	DR	6												
Simi Valley Transit, Simi Valley, CA	FR	141	[U]	OTR					[MS]	[X]				
Sonoma County Transit, Santa Rosa, CA	FR	24	[DG]						[U]	[X]				
South Coast Area Transit, Oxnard, CA	DR	9	[U]	IB					SC	X				
Southern California Regional Rail Authority (Metrolink), Los Angeles, CA	DR	5		GPS							X			
Stanislaus Regional Transit, Modesto, CA	FR	57								T,P				
Sunline Transit Agency, Thousand Palms, CA	DR	10		TR	IB						SC	X		
The Bus-Merced County Transit, Merced, CA	FR	44		TR										
The Vine/Napa Valley Transit, Napa, CA	DR	4		TR										
Thousands Oaks Transit, Thousand Oaks, CA	FR	152	DIG,[U]							P				
	DR	4		GPS			X	P						
	DR	5		GPS							X			
	FR	40	[U]	[GPS]	[U]									(X)
	DR	26	[U]	[GPS]							X			
	FR	22	TR											
	DR	22	TR											
	FR	19		GPS		X			[SC]	[X]			X	
	FR	5	TR,DIG	(GPS)	U				SC	X				
	DR	6	TR,DIG								X			

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Vehicles		Advanced Communications		Automated Passenger Counters		Vehicle Component Monitoring		Automated Operations Software		Multimodal Traveler Information		Automated Transit Information		Multi-Carrier Fare Integration		Paratransit CAD		Mobility Manager		Transportation Management Centres		Traffic Signal Priority						
		FR	DR	TR, DIG	TR, DIG	TR, DIG	TR, DIG	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	[DIG]	
Union City District, Union City, CA		FR	13	TR, DIG																										
Unitrans, Davis, CA		DR	5	TR, DIG																										
Vacaville City Coach, Vacaville, CA		FR	41	TR, DIG																										
Vallejo Transit and Baylink Ferry, Vallejo, CA		FR	7	[DIG]																										
Ventura Intercity Service Transit, Ventura, CA		DR	3	[DIG]																										
Western Contra Costa Transit Authority, Pinole, CA		FR	52																											
Visalia City Coach, Visalia, CA		DR	10																											
Yolo County Transportation District, Woodland, CA		FB	3																											
Yuba-Sutter Transit Authority, Marysville, CA		FR	14	TR, DIG																										
Avon/Beaver Creek Transit, Avon, CO		DR	8	TR, DIG																										
City of Greeley, Greeley, CO		FR	21																											
Colorado Springs Transit, Colorado Springs, CO		DR	6																											
Eagle County Regional Transportation Authority, Avon, CO		FR	29																											
Mesa County, Grand Junction, CO		DR	12																											
		FR	25	TR, DIG																										
		DR	7	TR, DIG																										
		FR	13	TR																										
		DR	9	TR																										
		FR	52	[GPS]																										
		DR	1	[GPS]																										
		FR	12																											
		DR	6																											
		FR	66	[U]	[GPS]	[B]	[X]																							
		DR	32	TR, DIG	[U]																									
		FR	3	TR, DIG	[U]																									
		FR	14	DIG	[GPS]	[U]	[U]																							
		DR	14	DIG	[GPS]	[U]	[U]																							

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status					
		FR	DR	DIG	DGPS	(TM), (IB)	[SC]
Regional Transit District, Denver, CO		800	205				
	DR						
	LR	17		DIG	DGPS		
	FR	24		DIG	[U]		
Transfort, Fort Collins, CO		40		DIG	[U]		
	DR						
	FR						
City of Stamford DAR, Stamford, CT		8		DIG			
Connecticut Limousine, Milford, CT		150		DIG	(DGPS)		
Connecticut Transit, New Haven, CT		372					
Cross Sound Ferry Services Inc., New London, CT		6					
Greater Bridgeport Transit District, Bridgeport, CT		53					
	DR						
	FR						
Greater Hartford TD, Hartford, CT		24					
	DR						
Greater New Haven Transit District, Hamden, CT		150		TR			
	DR						
Greater Waterbury Transit District, Waterbury, CT		112		DIG	(GPS)		
	DR						
Housatonic Area Regional Transit, Danbury, CT		20					
	DR						
Milford Transit District, Milford, CT		32					
	FR						
Northeast Transportation Company, Waterbury, CT		6					
	DR						
Norwalk Transit District, Norwalk, CT		12					
	FR						
South East Area Transit, Norwich, CT		41					
	DR						
The New Britain Transportation Company, Berlin, CT		6					
	FR						
	14						
	DR	1					
Traffic Signal Priority							X
Transportation Management Centres							X
Mobility Manager							
Paratransit CAD							
Multi-Carrier Fare Integration							
Automated Fare Payment							
Multimodal Traveler Information							
Automated Operations Software							
Vehicle Component Monitoring							
Automated Passenger Counters							
Advanced Communications							
Automated Vehicle Location							
Vehicle Component Monitoring							
Automated Operations Software							
Multimodal Traveler Information							
Automated Fare Payment							
Paratransit CAD							
Multi-Carrier Fare Integration							
Mobility Manager							
Transportation Management Centres							
Traffic Signal Priority							

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Vehicles										Advanced Communications	Automated Vehicle Location	Vehicle Component Monitoring	Automated Operations Software	Multimodal Traveler Information	Automated Transit Information	Multi-Carrier Fare Integration	Paratransit CAD	Mobility Manager	Transportation Management Centres	Traffic Signal Priority	
		[U]	[U]	[GPS]	[B]	[X]	(X)	[U]	[U]	[GPS]	[GPS]												
Washington Metro Area Transit Authority, Washington, DC	FR	1300	[U]																				
DART First State, Delaware Transit Core, Dover, DE	HR	784																					
Arc Transit, Palatka, FL	FR	154	[U]	[GPS]	[B]	[X]	(X)	[U]	[U]	[GPS]	[GPS]												
Bay County Council on Aging, Panama City, FL	DR	112	[U]	[GPS]																			
Broward County Mass Transit, Pompano Beach, FL	FR	18	[U]	GPS		X	P																
Central Florida Regional Transportation Authority (LYNX), Orlando, FL	DR	13	[U]	GPS																			
City of Tallahassee TALTRAN, Tallahassee, FL	FR	197	[D(G)]	(GPS)		(X)	(X)	[U]	[U]														
Escambia County Area Transit, Pensacola, FL	FR	202	[D(G)]	(GPS)		(X)	(X)	[U]	[U]														
Gainesville Regional Transit System, Gainesville, FL	DR	225		GPS	(IB)			(P)	(P)			[MS]											
Hillsborough Area Regional Transit Authority (HART), Tampa, FL	FR	116																					
Indian River County Council on Aging, Vero Beach, FL	DR	56	(IR)																				
Jacksonville Transportation Authority, Jacksonville, FL	FR	17	(IR)																				
Lakeland Area Mass Transit District, Lakeland, FL	DR	179		SO		X	U	[MS]	[MS]														
Lee County Transit, Ft Myers, FL	FR	183																					
	DR	8	TR																				
	FR	30	[TR]																				
	DR	13	[TR]																				
	FR	50	TR																				
	DR	15	TR																				

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Vehicles		Advanced Communications		Automated Passenger Counters		Vehicle Component Monitoring		Automated Operations Software		Multimodal Traveler Information		Automated Fare Payment		Multi-Carrier Fare Integration		Paratransit CAD		Mobility Manager		Transportation Management Centers		Traffic Signal Priority				
		FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	
Manatee County Transit, Bradenton, FL		16	TR								P																	
Okaloosa County Coordinated Transportation Inc., Fort Walton Beach, FL		17	TR									[X]																
Palm Tran Inc., West Palm Beach, FL		48																										
Pasco Co. PTD, Port Richey, FL				151							U																	
Sarasota County Transportation Agency, Sarasota, FL		66										[U]																
Space Coast Area Transit, Cocoa, FL		8	TR, DIG									[X]																
St. Lucie County Council on Aging, Port St. Lucie, FL		40	TR, DIG										[X]															
Tri-County Commuter Rail Authority, Ft Lauderdale, FL		38	TR, DIG																									
Volusia Transportation Authority (VOLTRAN), South Daytona, FL		27	TR																									
Albany Transit System, Albany, GA		30	TR																									
Athens Transit System, Athens, GA		34	DIG								GPS																	
Augusta Public Transit, Augusta, GA		8	TR									[X]																
Cobb County Transit, Marietta, GA		53										[U]																
Department of Transportation (METRA), Columbus, GA		15																										
		35																										
		6																										

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status			Traffic Signal Priority		
		FR	DR	IB	DGPS	T,W,P	X
Metropolitan Atlanta Rapid Transit Authority (MARTA), Atlanta, GA	Service Vehicles	704 [U]	77 [U]				X
University of Georgia Campus Transit System, Athens, GA	Advanced Communications	238 [U]	41 [DIG]		DGPS	X	X
City and County of Honolulu Department of Transportation Services, Honolulu, HI	Automated Vehicle Location	5 [DIG]					
Oahu Transit Services (The Bus), Honolulu, HI	Automated Passenger Counters	525 [DIG]	90 [DIG]				
Bettendorf Transit System, Bettendorf, IA	Vehicle Component Monitoring	102 7	4				
City of Davenport, Davenport, IA	Automated Operations Software	19 6	4	[U]	[IB]		
City of Dubuque-Keyline Transit, Dubuque, IA	Multimodal Traveler Information	19 6	19 [U]	[GPS] [GPS]			
Coralville Transit, Coralville, IA	Multi-Carrier Fare Integration	9 DR	6 FR				
Des Moines Metropolitan Transit Authority, Des Moines, IA	Paratransit CAD	98 26	TR TR	GPS GPS	P	(MS), (SC)	[X]
Five Seasons Transportation and Parking, Cedar Rapids, IA	Mobility Manager	40 11	40 TR	IB GPS	X	X	X
Metropolitan Transit Authority of Black Hawk County, Waterloo, IA	Transportation Management Centres	17 15	17 TR	[GPS] [GPS]			
Sioux City Transit System, Sioux City, IA	Traffic Signal Priority	26 17	26 TR	(U) (U)	(X) (X)		[X]
Siouxland Regional Transit System, Sioux City, IA		47 [TR]	47 [TR]				(X)

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Vehicles											
		Advanced Communications	Automated Passenger Counters	Vehicle Component Monitoring	Automated Operations Software	Multimodal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Paratransit CAD	Mobility Manager	Transportation Management Centres		
University of Iowa, CAMBUS, Iowa City, IA	FR DR FR DR FR DR FR DR FR DR FR HR	29 4 39 6 3 29 9 14 1883 292 1140	TR [GPS] TR TR [GPS] TR [GPS] TR [GPS] TR [GPS]	[X] <td></td> <td>[X]<td></td><td>[U]<td></td><td>[U]<td></td><td>[X]<td></td></td></td></td></td>		[X] <td></td> <td>[U]<td></td><td>[U]<td></td><td>[X]<td></td></td></td></td>		[U] <td></td> <td>[U]<td></td><td>[X]<td></td></td></td>		[U] <td></td> <td>[X]<td></td></td>		[X] <td></td>	
Boise Urban Stages, Boise, ID	FR DR FR DR FR DR FR DR FR DR FR DR	39 6 3 9 14 10 10 14 1883 292 1140	TR [GPS] TR TR [GPS] TR [GPS] TR [GPS] TR [GPS] TR [GPS]	[U] <td></td> <td>[U]<td></td><td>[U]<td></td><td>[U]<td></td><td>[X]<td></td></td></td></td></td>		[U] <td></td> <td>[U]<td></td><td>[U]<td></td><td>[X]<td></td></td></td></td>		[U] <td></td> <td>[U]<td></td><td>[X]<td></td></td></td>		[U] <td></td> <td>[X]<td></td></td>		[X] <td></td>	
C.A.R.T. Inc., Idaho Falls, ID	FR DR FR DR FR DR FR DR FR DR FR DR	29 9 14 10 10 14 10 14 10 14 10 14	TR [GPS] TR TR [GPS] TR [GPS] TR [GPS] TR [GPS] TR [GPS]	[U] <td></td> <td>[U]<td></td><td>[U]<td></td><td>[U]<td></td><td>[X]<td></td></td></td></td></td>		[U] <td></td> <td>[U]<td></td><td>[U]<td></td><td>[X]<td></td></td></td></td>		[U] <td></td> <td>[U]<td></td><td>[X]<td></td></td></td>		[U] <td></td> <td>[X]<td></td></td>		[X] <td></td>	
Pocatello Regional Transit, Pocatello, ID	FR DR FR DR FR DR FR DR FR DR FR DR	3 6 9 14 10 14 10 14 10 14 10 14	TR [GPS] TR TR [GPS] TR [GPS] TR [GPS] TR [GPS] TR [GPS]	[U] <td></td> <td>[U]<td></td><td>[U]<td></td><td>[U]<td></td><td>[X]<td></td></td></td></td></td>		[U] <td></td> <td>[U]<td></td><td>[U]<td></td><td>[X]<td></td></td></td></td>		[U] <td></td> <td>[U]<td></td><td>[X]<td></td></td></td>		[U] <td></td> <td>[X]<td></td></td>		[X] <td></td>	
Chicago Transit Authority, Chicago, IL	FR DR HR	292 1140	TR [GPS] TR [GPS]	[X] <td></td> <td>[X]<td></td><td>[U]<td></td><td>[U]<td></td><td>[X]<td></td></td></td></td></td>		[X] <td></td> <td>[U]<td></td><td>[U]<td></td><td>[X]<td></td></td></td></td>		[U] <td></td> <td>[U]<td></td><td>[X]<td></td></td></td>		[U] <td></td> <td>[X]<td></td></td>		[X] <td></td>	
Cook-Dupage Transportation Company, Inc., Chicago, IL	DR	140	OTR										
Greater Peoria Mass Transit, Peoria, IL	FR DR	53 10	[U] <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>										
Madison County Transit District, Granite City, IL	FR DR	76 30	TR, [DIG] <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>										
Northeast Illinois Regional Commuter Rail Corporation (METRA), Chicago, IL	CR	1100											
PACE Suburban Bus, Arlington Heights, IL	FR DR	640 350	TR [GPS]	IB	[X]	[P]	(X)	MS, [SC]	X	X	X		
Pekin Municipal Bus Service, Pekin, IL	FR DR	3 1	[U] <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>[X]</td>								[X]		
Rock Island County Mass Transit (METROLINK), Rock Island, IL	FR DR	63 5	[U] <td></td> <td>[GPS]</td> <td>[X]</td> <td>(T), (W), (P)</td> <td>(X)</td> <td></td> <td>[X]</td> <td></td>		[GPS]	[X]	(T), (W), (P)	(X)		[X]			
Rockford Mass Transit District, Rockford, IL	FR DR	38 14	DIG DIG							[X]			

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status			
		FR	DR	DIG	[GPS]
Urbana Champaign Mass Transit District, Urbana, IL	Service Vehicles	85	4	DIG	[GPS]
ACE Cab, South Bend, IN	Advanced Communications	42	4	DIG	[GPS]
Bloomington Public Transportation Corporation, Bloomington, IN	Automated Vehicle Location	23	TR, DIG	[GPS]	[X]
Fort Wayne Public Transportation Corporation, Fort Wayne, IN	Automated Passenger Counters	5	TR, DIG		
Gary Public Transportation Corporation, Gary, IN	Vehicle Component Monitoring	46			
Greater Lafayette Public Transportation, Lafayette, IN	Automated Operations Software	9			
Hammond Transit System, Hammond, IN	Multimodal Traveler Information	47			
Metropolitan Evansville Transit, Evansville, IN	Automated Fare Payment	2			
Muncie Indiana Transit System, Muncie, IN	Multi-Carrier Fare Integration	41	TR, DIG	[P]	
Northern Indiana Commuter Transportation District, Chesterton, IN	Paratransit CAD	9	TR, DIG		X
Terre Haute Transit Utility, Terre Haute, IN	Mobility Manager	27	TR, DIG		
Johnson County Transit, Olathe, KS	Transportation Management Centers	11	TR, DIG		
Wichita Metropolitan Transit Authority, Wichita, KS	Traffic Signal Priority	58	TR, DIG		
LEXTRAN, Lexington, KY		7	TR, DIG		

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Vehicles	Advanced Communications	Automated Passenger Counters	Vehicle Component Monitoring	Automated Operations Software	Multimodal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Paratransit CAD	Mobility Manager	Transportation Management Centres	Traffic Signal Priority
Transit Authority of Northern Kentucky, Fort Wright, KY	FR DR	117						X					
Transit Authority of River City, Louisville, KY	FR DR	280	TR	SO	IB	X	U				X	(X)	
City of Alexandria, Alexandria, LA	FR DR	75											
Crescent City Connection Division, New Orleans, LA	FB DR	11	[U]										
Louisiana Transit Co. Inc., Harahan, LA	FR	29	DIG										
Shreveport Area Transit System, Shreveport, LA	FR DR	45	TR, DIG	13	TR, DIG								
Terrebonne Parish Good Earth Transit System (GET), Houma, LA	FR	8	TR, DIG										
Brockton Area Transit Authority, Brockton, MA	FR DR	40		35									
Cape Cod RTA, Dennis, MA	FR DR	50	(DIG)	GPS		X	T,W,P	[MSI], [CC]	[MSI], [CC]	[MSI], [CC]	X		
Cape Island Express Lines Inc., New Bedford, MA	FB	1		U				U					
GATRA, Attleboro, MA	FR DR	20	TR, DIG	[DGPS]				[U]			X		
Lowell Regional Transit Authority, Lowell, MA	FR DR	45	TR, DIG	[DGPS]				U					
		35											
		35											X

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status		Comments
		FR	DR	
Massachusetts Bay Transportation Authority (MBTA), Boston, MA	Service Vehicles	FR	1119	TR, DIG
		DR	362	TR, DIG
		LR	173	TR, DIG
		HR	408	TR, DIG
		CR	346	TR, DIG
		FB	9	TR, DIG
		FR	45	(I)
		DR	5	
		FR	28	
		DR	100	X
Merrimack Valley Regional Transit Authority, Haverhill, MA	Advanced Communications	FR	268	TR
Montachusett Regional Transit Authority, Fitchburg, MA	Automated Vehicle Location	FR	72	
Pioneer Valley Transit Authority (PVTA), Springfield, MA	Automated Passenger Counters	FR	52	
Southeast Regional Transit Authority, New Bedford, MA	Vehicle Component Monitoring	FR	50	(P)
Worcester Regional Transit Authority, Worcester, MA	Automated Operations Software	FR	5	(X)
Frederick County Transit, Frederick, MD	Automated Fare Payment	FR	19	(MS)
Harford County Transportation, Abingdon, MD	Multimodal Traveler Information	FR	12	P
Maryland Transit Administration (MARC Train Service), BWI Airport, MD	Paratransit CAD	CR	132	OTR
Montgomery County Transit, Rockville, MD	Mobile Manager	FR	291	(DGPS)
Casco Bay Island Transit District, Portland, ME	Traffic Signal Priority	FB	5	(X)
Chebeague Transportation Co., Chebeague Island, ME	Transportation Management Centres	FR	3	(W), (P)
		FB	2	U

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status			
		FR	DR	DIG	Traffic Signal Priority
City of Bangor/Bangor Bus, Bangor, ME	Service Vehicles	FR	14	DIG	
Coastal Trans, Rockland, ME	Advanced Communications	DR	18		
CYR Bus Line, Old Town, ME	Automated Passenger Counters	FR	1		
Frye Island Ferry, Raymond, ME	Vehicle Component Monitoring	FB	2		
Greater Portland Transit District, Portland, ME	Automated Operations Software	FR	24	[T], [M], [P]	[X]
Isle Au Haut Stonington, Stonington, ME	Automated Vehicle Location	FB	2	[U]	
Kennebec Valley Community Action Program, Waterville, ME	Multimodal Traveler Information	FR	6		
Monhegan-Thomaston Boat Line, Port Clyde, ME	Automated Fare Payment	DR	19		
South Portland Bus Service, S. Portland, ME	Paratransit CAD	FB	2		X
The Regional Transportation Program, Portland, ME	Multi-Carrier Fare Integration	FR	8	DIG	
Waldo Co. Comm. for Social Action (Waldo Co. Transportation), Belfast, ME	Mobility Manager	DR	75		
Western Maine Transportation Pine Tree, Auburn, ME	Transportation Management Centres	FR	8		(X)
Western ME Transportation Services Inc., Mexico, ME	Traffic Signal Priority	DR	35		X
Ann Arbor Transportation Authority, Ann Arbor, MI		FR	77	DIG SO IB	[S,C] [X]
Battle Creek Transit, Battle Creek, MI		DR	10	DIG SO	X
		FR	20	[U]	
		DR	10	[U]	[X]

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status				Traffic Signal Priority
		FR	DR	TR	GPS	
Bay Metro Transportation Authority, Bay City, MI	Service Vehicles	FR 47	TR 9			
Capital Area Transportation Authority, Lansing, MI	Advanced Communications	FR 66	TR 52		GPS	
City of Detroit Department of Transportation, Detroit, MI	Automated Vehicle Location	FR 601				(U)
City of Jackson Transportation Authority, Jackson, MI	Automated Passenger Counters	FR 28	DR 36			
Detroit Transportation Corporation, Detroit, MI	Automated Operations Software	AG 12	U			
Grand Rapids Area Transit Authority (GRATA), Grand Rapids, MI	Vehicle Component Monitoring	DR 23				X
Kalamazoo Metro Transit System, Kalamazoo, MI	Multi-Carrier Fare Integration	FR 42	TR 5			
Mass Transportation Authority, Flint, MI	Paratransit CAD	DR 221	TR 95		(TR)	DC
Muskegon Area Transit System, North Muskegon, MI	Mobility Manager	FR 12	TR 6			
Suburban Mobility Authority for Regional Transportation (SMART), Detroit, MI	Multi-modal Traveler Information	FR 291	GPS 109	X		
City of Moorhead Transit, Moorhead, MN	Automated Fare Payment	FR 12	DR 2			
Duluth Transit Authority, Duluth, MN	Transportation Management Centres	FR 75	DR 6	[U]		
Mankato Heartland Express, Mankato, MN	Traffic Signal Priority	FR 15	DR 5	[U]	[U]	[X]

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Vehicles				Automated Passenger Counters	Vehicular Component Monitoring	Automated Operations Software	Multimodal Traveler Information	Automated Transit Information	Multi-Carrier Fare Integration	Paratransit CAD	Mobility Manager	Transportation Management Centres	Traffic Signal Priority		
		P	S	[U]	[GPS]												
Metro Transit, Minneapolis, MN	FR	900	[U]	[GPS]	[B]						X					X	[X]
St. Cloud Metropolitan Transit Commission, St. Cloud, MN	FR	29	[U]	[GPS]												[X]	[X]
Bi-State Development Agency, St. Louis, MO	DR	13	[U]	[GPS]												[X]	[X]
City Utilities of Springfield, Springfield, MO	FR	624			[B]												
Kansas City Area Transit Authority, Kansas City, MO	FR	280		SO													
St. Joseph Transit, St. Joseph, MO	FR	5	[TR, DIG]														[X]
Jackson Public Transportation Company, Jackson, MS	DR	15	[TR, DIG]														
Mississippi Coast Transportation Authority, Gulfport, MS	FR	41			[U]												
Billings Metro, Billings, MT	DR	13	TR														
Great Falls Transit District, Great Falls, MT	FR	17															
Asheville Transit Authority, Asheville, NC	DR	15															[X]
Capital Area Transit, Raleigh, NC	DR	16	TR	(SO)													
Charlotte Department of Transportation, Charlotte, NC	FR	15		[U]													
Greensboro Transit Authority, Greensboro, NC	DR	163	(TR), DIG													(MS), (SC)	(MS), (SC)
Greenville Area Transit, Greenville, NC	FR	50	DIG													X	[SC]
	FR	25	(TR, DIG)	[GPS]												[X]	[SC]
	DR	22	(TR, DIG)	[GPS]												[X]	[SC]
	FR	7	DIG													[U]	[U]

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Vehicles		Advanced Communications	Automated Vehicle Location	Automated Passenger Counters	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multimodal Traveler Information	Multi-Carrier Fare Integration	Paratransit CAD	Mobility Manager	Transportation Management Centers	Traffic Signal Priority	
		FR	DR													
Highpoint Transit, Highpoint, NC	FR	16														
Piedmont Wagon, Hickory, NC	DR	6													X	
Rocky Mount Transit, Rocky Mount, NC	FR	6	TR	[GPS]												
Winston-Salem Transit Authority, Winston-Salem, NC	FR	54	TR	[U]												
Bis-man Transit Board, Bismarck, ND	DR	20	TR	U												[X]
Grand Forks City Bus, Grand Forks, ND	DR	23	DIG													
StarTran, Lincoln, NE	FR	17														
Transit Authority of City of Omaha, Omaha, NE	DR	2														
COAST, Portsmouth, NH	FR	68	TR	[IB]												
Greater Laconia Transit Agency, Laconia, NH	FR	149		[GPS]											(X)	(X)
Nashua Transit System, Nashua, NH	DR	25		[GPS]												
North County Transportation, Berlin, NH	FR	13		[GPS]												
Coach USA Hudson Transit Lines, Inc., International Bus Services Inc., Mahwah, NJ	DR	1		[GPS]												
		FR	29													
		DR	29													
		FR	8	DIG												
		DR	10	DIG												
		DR	14	TR												
		FR	140												P	

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status				Multi-Carrier Fare Integration	Automated Transit Information	Automated Operations Software	Vehicle Component Monitoring	Advanced Communications	Automated Passenger Counters	Automated Vehicle Location	Multimodal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Centres	Traffic Signal Priority
		FR	TR	SO	(B)													
New Jersey Transit, Newark, NJ		FR DR LR CR	1900 101 23 700															
PATH, Jersey City, NJ		HR	345			X									MS			
Port Authority Transit Corp, Lindenwold, NJ		LR	121	[U]											U			
Rockland Coaches Inc., Bergenfield, NJ		FR	160												P			
City of Santa Fe (Santa Fe Trails), Santa Fe, NM		FR DR	28 6	TR	[U]										X			
Lead Runner Transit City of Las Cruces Transit Department, Las Cruces, NM		FR	15	TR														
SunTran, Albuquerque, NM		FR DR	118 50	TR, DIG											[P]	[X]		X
Citizen Area Transit, Las Vegas, NV		FR DR	227 126	[TR, DIG] [TR, DIG]	(DGPS) (DGPS)													[X]
Regional Transportation Commission of Washoe County, Reno, NV		FR DR	60 38	[U] [U]	[U] [U]													
Broome County Department of Public Transportation, Vestal, NY		FR DR	43 17															X
Capital District Transportation Authority, Albany, NY		FR DR	232 28	SO	U	X	X	P										X
Central New York Regional Transportation Authority, Syracuse, NY		FR DR	180 16	[DIG] [DIG]											MS			
City of Poughkeepsie Transit System, Poughkeepsie, NY		FR	8	TR											MS		[X]	

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status			Comments
		FR	DR	HR	
Dutchess County Division of Mass Transport, Poughkeepsie, NY	Service Vehicles	FR 29	TR 39		Traffic Signal Priority X
Liberty Lines Transit, Yonkers, NY		FR 294	SO 300		Transportation Management Centers [X]
Long Island Bus, Garden City, NY		FR 50	TR 50		Mobility Manager [X]
Long Island Rail Road, Jamaica, NY		CR 1100			Paratransit CAD X
Metro North Commuter RR Co., New York, NY		CR 906			Multi-Carrier Fare Integration [X]
Monsey New Square Trails Corporation, Spring Valley, NY		FR 52			Automated Fare Payment MS X
New York City Department of Transportation, New York, NY		FR 1150	[GPS] 3800	[IB] (TR)	Automated Traveler Information [X] T, P X
New York City Transit, Brooklyn, NY		FR 200	(GPS) (DGPS)	(X)	Multi-Modal Traveler Information [X]
Newburgh Beacon Bus Corp, Newburgh, NY		HR 5807			Automated Operations Software [CC] MS X
Niagara Frontier Transportation Authority, Buffalo, NY		FR	355	(TR, DIG) [TR, DIG]	Automated Passenger Counters [X]
Rochester-Genesee Regional Transportation Authority, Rochester, NY		FR	244	[U]	Vehicle Component Monitoring [X]
Rockland County DO Public Transport, Pomona, NY		DR	36		Automated Vehicle Location [X]
Staten Island Rapid Transit Operating Authority, Staten Island, NY		HR	64		MS X

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status									
		FR	DR	U	[U]	[U]	[U]	[U]	[U]	[U]	[U]
Suffolk County Department of Public Works- Transportation Division, Yaphank, NY	Service Vehicles	FR	141	TR	[U]	[X]					[MS]
Tompkins Consolidated Area Transit, Ithaca, NY	Advanced Communications	DR	32	TR	[U]						[MS]
Westchester County DOT, White Plains, NY	Automated Passenger Counters	FR	58			[X]	U				[MS]
Allen County Regional Transit Authority, Lima, OH	Automated Vehicle Location	DR	4		SO, [GPS]	[B]					[MS]
Campus Bus Service, Kent, OH	Vehicle Component Monitoring	FR	352								
Central Ohio Transit Authority, Columbus, OH	Automated Operations Software	FR	27		[U]	SO	IB				X
Greater Cleveland Regional Transit Authority, Cleveland, OH	Multimodal Traveler Information	FR	306	[U]							
LakeTran, Grand River, OH	Automated Fare Payment	FR	4								
Metro Regional Transit Authority, Akron, OH	Multi-Carrier Fare Integration	DR	800	[U]	[DGPS]						
Miami Valley Regional Transit Authority, Dayton, OH	Paratransit CAD	DR	82	[U]	[DGPS]						
Middletown Transit System, Middletown, OH	Mobility Manager	FR	48	[U]	[DGPS]						
Portage Area Regional Transportation Authority (PORTA), Kent, OH	Transportation Management Centres	DR	6	1	[U]						X
Richland County Transit, Mansfield, OH	Traffic Signal Priority	FR	141	[U]	[U]	[B]					X
		DR	54	TR, DIG	(GPS)						X
		DR	54	TR, DIG	(GPS)						X
		DR	1								X
		DR	19	[U]							X
		FR	8								X
		DR	5								X

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Advanced Communications		Automated Passenger Counters		Vehicle Component Monitoring		Automated Transit Information		Multimodal Traveler Information		Multi-Carrier Fare Integration		Paratransit CAD		Mobility Manager		Transportation Management Centres		Traffic Signal Priority		
		FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	
Southwest Ohio Regional Transit Authority, Cincinnati, OH	Service Vehicles	FR	389			(GPS)																
Toledo Area Regional Transit Authority, Toledo, OH	Service Vehicles	DR	41			(GPS)																
Western Reserve Transit Authority, Youngstown, OH	Service Vehicles	FR	184	DIG																		
Central Oklahoma Transit and Parking Authority, Oklahoma City, OK	Service Vehicles	DR	16																			
Metropolitan Tulsa Transit Authority, Tulsa, OK	Service Vehicles	FR	90			[GPS]																
Lane Transit City Bus, Eugene, OR	Service Vehicles	DR	30	TR, DIG		[GPS]																
Rogue Valley Transit District, Medford, OR	Service Vehicles	FR	116			[GPS]	TM															
Salem Area Mass Transit District, Salem, OR	Service Vehicles	FR	25	DIG																		
Tri-County Metropolitan, Portland, OR	Service Vehicles	DR	7																			
Altoona Metro Transit, Altoona, PA	Service Vehicles	FR	55																			
Area Transportation Authority of North Central Pennsylvania, Johnsonburg, PA	Service Vehicles	FR	700	[TR]	DGPS	IB					P											
Beaver County Transit Authority, Rochester, PA	Service Vehicles	DR	160	[TR]	DGPS					X	[L]	[SC]										
County of Lackawanna Transit System (COLTS), Scranton, PA	Service Vehicles	FR	28																			
Luzerne County Transportation Authority, Kingston, PA	Service Vehicles	DR	27	[U]	[GPS]																	

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Vehicles		Advanced Communications		Automated Vehicle Location		Automated Passenger Counters		Vehicle Component Monitoring		Automated Operations Software		Multimodal Traveler Information		Automated Transit Information		Multi-Carrier Fare Integration		Paratransit CAD		Mobility Manager		Transportation Management Centres		Traffic Signal Priority			
		FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR	FR	DR		
Port Authority of Allegheny County, Pittsburgh, PA	FR	911																											
Southeastern Pennsylvania Transportation Authority, Philadelphia, PA	LR	59	[TR]	FR	1476	[U]	[DGPS]	[U]	[U]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	
Williamsport Bureau of Transportation, Williamsport, PA	FR	25	TR, DG																										
Metropolitan Bus Authority, San Juan, PR	FR	168	[TR, DG]	SO, [GPS]		[X]	X																						
Puerto Rico Highway and Transportation Authority, San Juan, PR	DR	24	[TR, DG]																										
Rhode Island Public TA, Providence, RI	FR	29																											
City of Charleston Transit Administration, Charleston, SC	DR	92																											
Pee Dee Regional Transportation Authority, Florence, SC	FR	50		[GPS]	[U]																								
Santee Wateree Regional Transportation Authority, Sumter, SC	DR	150		[GPS]	[GPS]																								
Spartanburg County Transportation, Spartanburg, SC	FR	40	[TR, DG]	[GPS]																									
Rapid Transit System, Rapid City, SD	DR	60	[TR, DG]	[GPS]																									
Sioux Falls Transit, Sioux Falls, SD	FR	35																											
	DR	7	TR																										
	DR	11	TR																										
	FR	23																											
	DR	22																											

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status			Comments
		FR	76	TR	
Chattanooga Area Regional Transportation Authority, Chattanooga, TN	Service Vehicles	DR	15	TR	
City of Kingsport (Kingsport Area Transit Lines), Kingsport, TN	Service Vehicles	FR	3	TR	
Clarksville Transit System, Clarksville, TN	Advanced Communications	DR	3	TR	
Johnson City Transit System, Johnson City, TN	Automated Vehicle Location	FR	19	[U]	
Knoxville (KAT), Knoxville, TN	Automated Passenger Counters	DR	5	TR	[X]
Memphis Area Transit Authority, Memphis, TN	Vehicle Component Monitoring	FR	10	(DIG)	[T], [M], [P]
Metropolitan Transit Authority, Nashville, TN	Automated Operations Software	DR	7	(DIG)	[GPS]
Amarillo Transit System, Amarillo, TX	Multimodal Traveler Information	FR	80		(P)
Bryan College Station, Bryan, TX	Automated Fare Integration	DR	20		(X)
BVCAA-Brazos Transit System, Bryan, TX	Paratransit CAD	FR	202	TR	X
Capitol Metropolitan Transportation Authority, Austin, TX	Mobility Manager	DR	4	TR	[U]
City Bus, Lubbock, TX	Transportation Management Centres	FR	51	TR, DIG	[P]
City of Brownsville Urban System, Brownsville, TX	Traffic Signal Priority	DR	17	TR, DIG	[X]
		FR	19	DIG	[U]
		DR	8	DIG	

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Components									
		Automated Vehicle Location	Vehicle Component Monitoring	Automated Operations Software	Multimodal Traveler Information	Automated Transit Information	Automated Fare Payment	Multi-Carrier Fare Integration	Paratransit CAD	Mobility Manager	Transportation Management Centres
City of Denton, Denton, TX	FR	6	TR								
	DR	10	TR								
City of Mesquite Parks and Recreation, Mesquite, TX	DR	15							[X]		
City of San Angelo, San Angelo, TX	FR	7	DIG								
	DR	7	DIG								
City of Temple, Temple, TX	DR	5					U				
Corpus Christi Regional Transportation Authority, Corpus Christi, TX	FR	73	TR	[U]	[B]						
	DR	36	TR								
Dallas Area Rapid Transit (DART), Dallas, TX	FB	1	TR					X			
	FR	1200		GPS	[U]				I,P		
	DR	600		GPS							
Lewisville Dial-A-Ride, Lewisville, TX	LR	14							I,P		
	CR	1							I,P		
Metro Transit Authority of Harris County, Houston, TX	FR	171							[SC]	[X]	
Fort Worth Transportation Service Department Authority, Fort Worth, TX	DR	33							[SC]	[X]	
Sun Metro, El Paso, TX	FR	6								X	
Transportation Services Department, Grand Prairie, TX	DR	1112	TR	[U]			U			X	
Via Metropolitan Transit, San Antonio, TX	DR	115	TR	[U]						X	
	FR	159		[U]							
Logan Transit District, Logan, UT	FR	494	(U)	(DGPS)	(IB)		P				
	DR	134	(U)	(DGPS)							
Waco Transit System, Waco, TX	FR	16	TR								
	DR	5	TR								

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status										Traffic Signal Priority
		FR	DR	LR	FR	DR	FR	DR	FR	DR	FR	
Utah Transit Authority, Salt Lake City, UT	Service Vehicles	FR 550	[U]	[U]	FR 60	[U]	FR 23	[U]	FR 31	(GPS)	(P)	
Blacksburg Transit, Blacksburg, VA	Advanced Communications											
Charlottesville Transit Service, Charlottesville, VA	Automated Vehicle Location											
Potomac and Rappahannock Transportation Commission, Woodbridge, VA	Vehicle Component Monitoring											
Tidewater Transportation District Commission (TTDC), Norfolk, VA	Automated Passenger Counters											
Virginia Railway Express, Alexandria, VA	Automated Operations Software											
Addison County Transit Resources, Middlebury, VT	Multimodal Traveler Information											
Green Mountain Express, Bennington, VT	Paratransit CAD											
Lake Champlain Transport Co., Burlington, VT	Mobility Manager											X
SEVCA Transportation, Westminster, VT	Transportation Management Centres											X
Ben Franklin Transit, Richland, WA												
CTRAN, Vancouver, WA												
Everett Transit, Everett, WA												

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Service Vehicles	Advanced Communications	Automated Passenger Counters	Vehicle Component Monitoring	Automated Operations Software	Multimodal Traveler Information	Automated Transit Information	Automated Fare Payment	Multi-Carrier Fare Integration	Paratransit CAD	Mobility Manager	Transportation Management Centres	Traffic Signal Priority
Intercity Transit, Olympia, WA	FR DR	80 25					T, P [SC]	X [SC]	[X]			X	X	
King County Metro, Seattle, WA	FR DR	1343 279	SO [GPS]	IB GPS			U [SC]	U [SC]	[X]			X		
Kitsap Transit, Bremerton, WA	FR DR	120 40	TR TR	GPS GPS										
Pierce County Public Works and Utility, Tacoma, WA	FB	2					U	U						
Pierce Transit, Tacoma, WA	FR DR	200 92	TR TR			(U) (X)						X		
Spokane Transit Agency, Spokane, WA	FR DR	144 60	DIG DIG									X		
Valley Transit, Walla Walla, WA	FR DR	17 5	GPS				P					X		
Washington State Ferries/DOT, Seattle, WA	FB	27	DIG											
Whatcom Transportation Authority, Bellingham, WA	FR DR	34 31	TR, DIG TR, DIG									X		
Janesville Transit System, Janesville, WI	FR	23					P							
Kenosha Transit, Kenosha, WI	FR DR	47 4	[U] [GPS]											
LaCrosse Municipal Transit Utility, LaCrosse, WI	FR DR	22 6	TR											
Madison Metro Transit, Madison, WI	FR DR	195 30	[TR] [TR]				P					X		
Milwaukee County Department of Transportation, Milwaukee, WI	FR DR	550 500	TR, DIG DGPS	[IB] [U]			X					[X]		

TABLE 2. APTS DEPLOYMENT IN U.S. BY TRANSIT AGENCY

Agency	Service Type	Deployment Status							
		FR	DR	LC	[P]	[P]	(MS)	[X]	X
Sheboygan Transit System, Sheboygan, WI	Service Vehicles	29	8						
Transit Management of Racine, Racine, WI	Advanced Communications	50							
Waukesha Transit System Utility, Waukesha, WI	Automated Vehicle Location	23							
Kanawha Valley Regional Transit Authority, Charleston, WV	Automated Passenger Counters	3							
Mid-Ohio Valley Transit Authority, Parkersburg, WV	Vehicle Component Monitoring	6							
City of Casper, Casper, WY	Automated Operations Software	3							
	Multimodal Traveler Information								
	Automated Fare Payment								
	Multi-Carrier Fare Integration								
	Paratransit CAD								
	Mobility Manager								
	Transportation Management Centers								
	Traffic Signal Priority								